

Selective Service Rejection Statistics and Some of Their Implications

G. ST. J. PERROTT, F.A.P.H.A.

Division of Public Health Methods, U. S. Public Health Service, Washington, D. C.

PRESIDENT TRUMAN in his Health Message to Congress on November 19, 1945, reported that the Selective Service System has brought the widespread physical and mental incapacity among the young people of the nation "forcibly to our attention in terms which all of us can understand."

"As of April 1, 1945," the President stated, "nearly 5,000,000 male registrants between the ages of 18 and 37 had been examined and classified as unfit for military service. The number of those rejected for military service was about 30 per cent of those examined. The percentage of rejection was lower in the younger age groups and higher in the higher age groups, reaching as high as 49 per cent for registrants between the ages of 34 and 37. In addition, after actual induction, about a million and a half men had to be discharged from the Army and Navy for physical or mental disability, exclusive of wounds; and an equal number had to be treated in the armed forces for diseases or defects which existed before induction."

These facts are not new, as the President pointed out. Health authorities have been concerned about the serious state of ill health among American youth since late in 1941 when the Selective Service System published its first analysis of the health status of inductees. In this paper it is proposed to discuss the validity of the data as a measure of the prevalence of physical and mental defects and diseases, with

particular reference to changes in prevalence which have occurred since 1918. The data will be examined with a view to estimating the significance of these findings to public health.

Rejection rates must be a first consideration in any evaluation of Selective Service findings. These rates varied greatly during the war. In the first year of Selective Service, registrants were given complete physical examinations by local board physicians. Those who were found to be fit were sent to Army induction stations for final physical examination and, on the basis of this latter examination, were accepted or rejected for military service. Rejection rates for this period (November, 1940, through September, 1941) averaged 52.8 per cent of all men examined. Following Pearl Harbor, a marked reduction was noted. This was probably due to pressure on local boards and induction stations for additional military man power.

By January, 1943, the rates reached an all-time low of 28 per cent. They rose gradually during the year, however, reaching a high of 42 per cent during the last four months of 1943. The increase is attributed mainly to: (1) a higher age average among men examined, and (2) a higher proportion of previously rejected men among examinees as local boards reclassified registrants in an effort to meet their quotas.

The decrease in the rejection rate from 42 to 31 per cent by the end of

the first five months of 1944 resulted largely from two conditions. The average age of men examined was lower than in the previous period, and examination facilities at induction stations were taxed by unusually heavy in-pourings of selectees.

Rejection rates began again to increase by the middle of 1944, progressing steadily from 36 per cent in June to 45 per cent in November. The reasons were: induction for limited service was halted in June; and in the same month psychological tests for mental capacity were modified so that some illiterates, who previously would have been inducted, were rejected. Moreover, during this period greater emphasis was placed on the need for inducting men suitable for combat replacements.

These changing procedures affecting the trend of rejection rates illustrate some of the difficulties involved in evaluating the level of national health in terms of acceptance or rejection for military duty. At any particular period the rejection rates tell only the relative number of individuals who did not qualify according to standards of that period. As has been seen, some of these standards had no relation to physical status.

In discussing rejection rates, Col. Leonard G. Rowntree* said: "Rejection rates based upon the number of registrants rejected for military service per 1,000 men examined have limitations in their use as criteria of good civilian health. Rejection rates are dependent upon too many factors, as for instance (1) changes in standards of induction, (2) changing deferment policies, (3) varying numbers of registrants by age, race, urban-rural areas, all of which introduce variables correctable only through the calculation

of specific rejection rates, (4) whether a registrant is coming up for the first, second, third, or fourth examination, and (5) how far military standards exceed those required of normal civilian living. Selective Service, therefore, regards the rejection rate per 1,000 men examined as useful in measuring the nation's health only in terms of the limitations placed upon such rates. The incidence of all recorded defects in accepted and rejected men is a better index of the health picture. The latter is only limited in so far as all defects may not be recorded."

In addition to this limitation, however, there are other elements that must be considered in any attempt to arrive at a true evaluation. These include differences in examining techniques at various examination centers, idiosyncrasies of the examining personnel, and the attitudes of the examinees.

A comparison of the reports for November, 1940, through September, 1941, and for April, 1942, through December, 1943, illustrates the effects of these factors on Selective Service findings of the prevalence of disease and disability.

In the first report 1,583.3 defects per 1,000 men examined were recorded; in the second, 1,000.2 defects for each 1,000 examinees. Between the two periods, the coding procedures were changed so that the complete list of defects was not always available in the 1942-1943 data. Since the defects were summarized in order of significance, the limitations of coding would result in the omission of less significant defects and account, at least partly, for the drop in rate.

The effect of such omission and of the other stated factors can be gauged by a comparison of rates for specific kinds of defects. For example, in 1940-1941 when the coding was more complete and when flat feet were a cause for rejection, foot defects, with an average of

* Chief, Medical Division, National Headquarters, Selective Service System

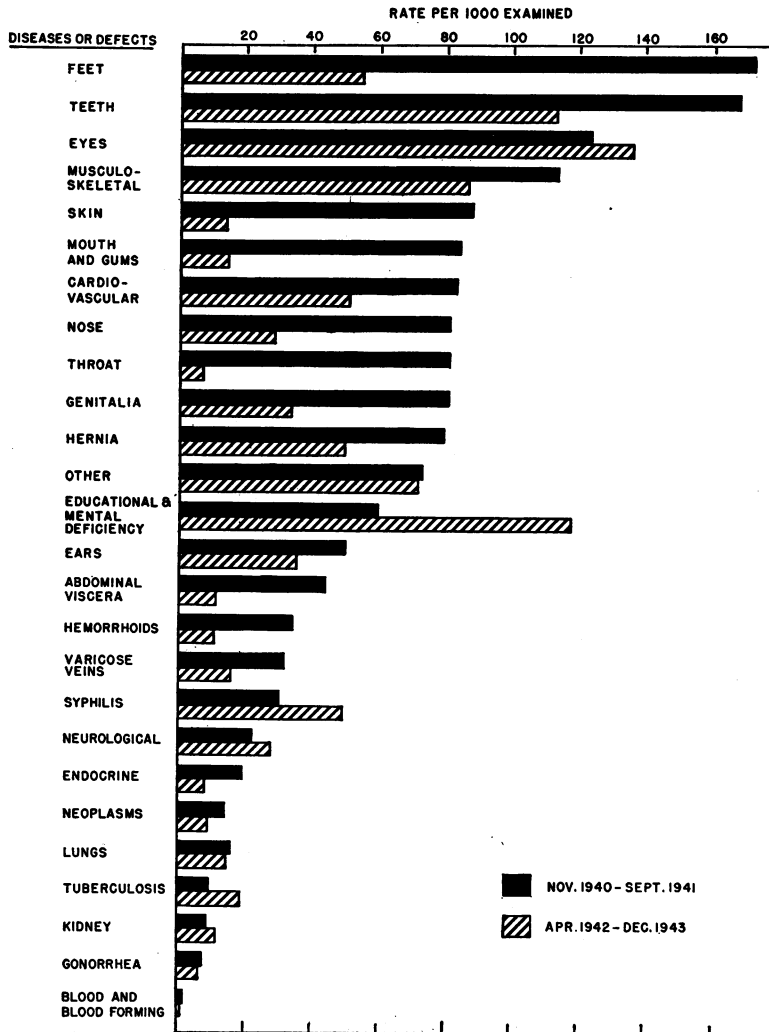


FIGURE 1—Recorded frequency of defects and disease reported among Selective Service registrants examined during November, 1940–September, 1941, and April, 1942–December, 1943

172.4 per 1,000 men, led the list of disabilities. By 1942–1943, however, minor foot ailments were considered unimportant, and reporting on this category fell to 54.6 per 1,000 examinees. Similarly, dental defects — averaging 167.8 per 1,000 men — were second highest among defects listed for 1940–1941. By 1942–1943, the incidence had fallen to 113.0 per 1,000 examinees. This, likely, was due to the failure of ex-

amining personnel to record all cases of carious or missing teeth, or to give dental defects sufficient precedence for inclusion in the coding, since these defects no longer were cause for deferment.

Marked decreases also are found in the prevalence of throat diseases, skin diseases, and defects of the abdominal viscera as the need for more military personnel grew urgent and examining

physicians tended to concentrate on the more serious defects. The relatively minor conditions were included as secondary defects only and thus omitted in the coding.

On the other hand, reports of important defects remained fairly constant in 1942-1943. Eye defects, for example, varied only slightly in the two periods. There also was little change in the reported prevalence of neurological diseases, or of diseases of the lung, kidney, and ear. A large proportion of conditions in these groups of defects were outright causes for rejection; and reporting, necessarily, was fairly complete.

The great increase in the incidence of tuberculosis (9.7 to 19.1) is accounted for largely by a change in examination procedure. Chest x-rays did not become an examination routine until 1942; therefore, it is reasonable to suppose that many cases of tuberculosis among pre-Pearl Harbor inductees passed through examining stations undetected.

The wide variations in reports of educational and mental deficiency recorded for the two periods are easily traceable to different definitions of "educational deficiency" in effect during the two periods. Between November, 1940, and May 15, 1941, regulations stated that registrants were acceptable who "appear to have normal understanding, whose speech can be understood, who have no definite signs of organic disease of the brain, spinal cord or peripheral nerves, and who are otherwise mentally and physically fit." During this period, illiteracy was mentioned in the records of 3.6 registrants per 1,000 examined. On May 15, 1941, however, the standards were raised to require that a registrant should be able to "read and write the English language as well as a student who has completed four years in an American grammar school." These standards re-

mained in force until April 1, 1942. As could be expected, rates for educational and mental deficiency rose in the period.

Mental disease, which was high among the more serious defects in both periods, was found in 67.5 men out of every 1,000 examined in 1942-1943. At the top of the list among these diseases were psychoneurotic disorders, psychopathic personality, and grave mental or personality disorders. Since serious attention was given by examining physicians to evidence of mental disease in both periods, and since the reports for the periods are consistent, it could be concluded that reporting and coding of the incidence of mental disease was fairly accurate.

These comparisons bring out the fact that the order of defects may have been closely associated with prevailing regulations for the rejection or acceptance of examinees for military service. The judgment of the individual examiner in evaluating the relative importance of a series of defects also must be considered as a factor in determining the listing. It is likely, then, that reporting on many defects varied as Selective Service regulations changed; that recording of secondary defects tended to be overlooked as coding procedures were simplified, and that the opinion of examining physicians in classifying defects according to relative importance was associated to some degree with military standards.

Review of the figures leaves little doubt that the findings for 1940-1941 more clearly approach the actual prevalence of defects, although how close that approach is can only be guessed. There seems reason to believe that the figures present a fair picture of the prevalence of major defects—with allowances made for variations in examining techniques, in the judgment of examining physicians and in the recording and coding of defects. It also seems obvious that the many factors which

influenced the recognition and recording of secondary defects detract from the accuracy of the reports.

None of the factors which have influenced the reporting and coding, however, obscures the enormous volume of defects. Since all defects—whatever their nature or degree of concern to military authorities—are of importance to the individuals affected, the findings of Selective Service pose a public health problem which must be solved before good health can be achieved for the population.

Too much emphasis is still placed on the decline in mortality as a measure of achievement in health work. Death is by no means the sole measure of the level of national health. To raise the health level, it is essential that increased attention be given to preventing and curing those conditions which cause illness or which reduce the capacity of the individual.

Since the last war the national mortality rate has declined by 3.1 per 1,000 population. Among young men 20 to 34 years, the death rate has gone down nearly 30 per cent. One could feel more complacent if this reduction in mortality were associated with an equal reduction in disability. But such is not the case as comparison of the findings in World War I with those of World War II illustrates.

Reports on the prevalence of defects in the first war show that 661.9 defects were recorded per 1,000 men examined—in contrast to 1,000.2 defects per 1,000 in 1942–1943 and 1,583.3 in 1940–1941. Just as the differences between the 1940–1941 and the 1942–1943 data are due largely to the coding of the diseases, so it must be suspected that failure to record many minor defects in World War I accounts for a major part of the discrepancy in the records of the two wars. In addition, differences in the medical terminology of the two periods make it difficult to determine the

exact classification of defects in many instances. Diagnosis of a number of diseases also underwent refinement in the interval between wars.

As a result, although wide variations in some general groupings will be noted, differences in specific categories, where similarity in terminology permits comparison in the two periods, are not always as great as might be expected. Among diseases of the eye, for instance, 61.0 defects per 1,000 men examined were found in 1917–1918, against 123.5 in 1940–1941. Yet for bilateral and unilateral blindness—an easily defined defect which can be assumed to have been reported in the same category for both wars—the difference is small. Similarly, there is only small variation in recordings of the incidence of trachoma and the slight decrease noted in 1940–1941 may point to some public health accomplishment in the conquest of this disease.

Increased medical knowledge is a factor that cannot be overlooked in comparing the incidence of a number of defects. This is particularly true of asthma, cardiovascular disease, and venereal disease. Since diagnosis of these conditions is much more frequent throughout the population today than twenty years ago, it follows that the incidence among a selected group in 1940 should be greater than in 1917.

Variations in the incidence of tuberculosis are of especial interest since examination procedures in effect in 1940–1941 more closely approximated those of 1917 than in any other period of World War II. Moreover, the decline in incidence rates for the two periods bear fairly close resemblance to the drop in the national tuberculosis mortality rate between 1920 (113.1) and 1940 (45.9). Since the incidence of tuberculosis increased markedly with the inauguration of chest x-rays as an examination routine—moving to 19.1 per 1,000 men in 1942—

TABLE 1
*Prevalence of Certain Recorded Defects Among Drafted Men,
 World War I¹ and World War II²*

| Diseases or Defects | Rate per 1,000 Men Examined | | | |
|-------------------------------------|-----------------------------|-------|----------------------|-------|
| | World War I | | World War II | |
| All diseases or defects | 661.9 ³ | | 1,583.3 ³ | |
| Eyes | 61.0 ³ | | 123.5 ³ | |
| Blindness, bilateral and unilateral | | 7.5 | | 6.5 |
| Trachoma | | 1.2 | | 0.5 |
| Defective vision | | 46.3 | | 83.3 |
| Ears | 15.4 ³ | | 50.1 ³ | |
| Defective hearing | | 7.1 | | 9.4 |
| Otitis media | | 7.3 | | 8.3 |
| Asthma | 2.3 | | 5.4 | |
| Hypertrophic tonsillitis | 33.8 | | 44.1 | |
| Tuberculosis (all forms) | 24.7 | | 9.7 | |
| Cardiovascular | 50.2 ³ | | 83.1 ³ | |
| Valvular diseases of the heart | | 29.6 | | 12.7 |
| Cardiac hypertrophy | | 4.2 | | 2.8 |
| Tachycardia | | 5.0 | | 6.7 |
| Hernia and inguinal rings | 55.4 | | 79.7 ³ | |
| Hernia | | 27.6 | | 34.8 |
| Enlarged rings | | 27.8 | | 34.4 |
| Venereal diseases | 46.7 | | 38.1 | |
| Gonorrhea | | 36.0 | | 7.1 |
| Syphilis | | 9.5 | | 30.8 |
| Chancroid | | 1.2 | | 0.2 |
| Varicose veins and varicocele | 8.8 | | 32.1 | |
| Mental deficiency | | 12.2 | | 15.3 |
| Epilepsy | | 3.9 | | 3.7 |
| Mental alienation | | 3.8 | | 16.3 |
| Crippled or paralyzed members | | 48.7 | | 76.8 |
| Lost members: | | | | |
| Upper extremities | | | | |
| Fingers | | 7.6 | | 7.1 |
| Other | | 1.6 | | 1.5 |
| Lower extremities | | 4.6 | | 3.6 |
| Flat feet | | 104.4 | | 162.0 |
| Curvature of the spine | | 7.7 | | 15.0 |

¹ From Table 4 in Britten, R. H., and Perrott, G. St. J., Summary of physical findings on men drafted in the world war. *Pub. Health Rep.*, 56:41-62, 1941.

² From Table 7 in Selective Service System, Causes of rejection and incidence of defects. *Med. Stat. Bull.* No. 2 (Aug. 1), 1943.

³ The sum of the rates for specific categories of defects does not always add to the rate for the general category because of the omission of specific categories not comparable to the two periods: World War I and World War II.

1943—it seems evident that (1) considerable tuberculosis went undiscovered in 1917-1918, and (2) that the incidence of the disease actually was lower in 1940 than twenty years previously.

Loss of members is an obvious defect that cannot be influenced by any of the elements affecting reporting or diagnostic procedures; therefore, these figures can be accepted at face value. The great similarity in rates for this type of defect, as well as for others which are easily observed, leads to the con-

clusion that the prevalence of a number of defects in 1917 was probably about the same as in 1940-1941.

Certainly, evidence of great improvement is not reflected in the comparison. While slight decreases may be indicated in the incidence of a few defects and diseases over the twenty year period, they are too small to be proof of progress. Examination of the findings of World War I and World War II, then, seems to attest to the conclusion that the health level of the American people

has not improved in the same degree as mortality for at least two decades.

The central fact remains that the findings of both wars show an enormous amount of ill health in the population.

During and after the first World War, draft data were reviewed, analyzed, and interpreted. Over the ensuing years, medical statisticians decried the low level of health among the nation's young men and viewed the situation with alarm. It is regrettable that the papers produced by these statisticians represent the sole use to which the findings of World War I were put.

Now, once more, protests are being raised against the health level—this time based on the amount of defects found among the sons of World War I examinees. It is to be hoped that the implications of these latest wartime health reports will be regarded as an index of the degree of actual need and will be utilized in planning health services which must be supplied to bring to oncoming generations the benefits of knowledge already at hand.

Reports of defects found among young men examined for military duty in World War II can serve as signposts to health authorities in plotting future activity. Much of the past achievement in public health has been due to the application by health departments of epidemiological case finding techniques to the control of disease spread. Selective Service data make available a new source of information for evaluating the relative extent of particular physical and mental defects.

The President in his recommendations to the Congress for the establishment of a National Health Program has used the reports on medical examinations of selectees to gauge the total health needs of the country. Nation-wide programs for the prevention and cure of tuber-

culosis, venereal diseases, and other communicable diseases are now authorized by the Congress. State and local health authorities can use Selective Service findings to ascertain where existing programs should be strengthened and what additional services are required. In the past, health authorities have turned to mortality rates as a major index for determining problems of public health significance. The limitations of these rates in evaluating health needs have been recognized. Knowledge provided by mortality statistics is confined to deaths resulting from specific diseases. A well organized attack on the whole health front requires comprehensive and current information on the prevalence of disease and defects—in short, complete morbidity reporting in every state. In lieu of this, Selective Service data, while not so accurate, offer an immediate and potent source of information on the prevalence of those defects which it is within the province of public health to prevent or remedy.

REFERENCES

1. Britten, R. H., and Perrott, G. St. J. Summary of Physical Findings on Men Drafted in the World War. *Pub. Health Rep.*, Vol. 56 (Jan.), 1941.
2. Lew, E. A. Interpreting the Statistics of Medical Examinations of Selectees. *J. Am. Statis. Bull.*, 39:345-356, 1944.
3. Message from the President of the United States. National Health Program, November 19, 1945. *H.R. Document No. 380*.
4. Office of the Surgeon General. Induction Examinations. *Bull., U. S. Army Med. Dept.*, 87:54-60, 1945.
5. Perrott, G. St. J. Findings of Selective Service Examinations. *Milbank Mem. Fund Quart.*, Vol. XXII, 1944.
6. Rowntree, Col. L. G. Testimony before Subcommittee of the U. S. Senate Committee on Education and Labor, Seventy-eighth Congress, 2nd Session, July, 1944.
7. Selective Service System. Causes of Rejection and the Incidence of Defects. *Med. Stat. Bull.* No. 2, 1943.
8. Selective Service System. Physical Examinations of Selective Service Registrants During Wartime. *Med. Stat. Bull.* No. 3, 1944.